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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,648	09/30/2003	Kenneth E. Salsman	ITL.1005US (P16610)	5824

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EXAMINER

FATAHIYAR, MAHMOUD

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,648	Applicant(s) SALSMAN, KENNETH E.	
	Examiner Mike Fatahiyar	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/22/04 and 4/4/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "pixel level digital drivers"(claim 15), "color switcher"(claim 24) and the "processor and at least two buffers"(claims 26 and 30) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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2. The disclosure is objected to because of the following informalities: In page 3, line 26, "full" should be - - fall - -.

In page 6, line 4, "be" should be inserted right after "may".

Appropriate correction is required.

3. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 10, 20 and 27 the recitation "driving the liquid crystal cell with low voltage signal" is vague, indefinite and incomplete because it is not clear whether the scanning electrodes or the data electrodes of the LCD cell are driven the low voltage signal. Corrections and/or clarification is required.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5-6, 10-13, 15-19 and 27-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Sandberg et al (WO 01/77747A2).

Sandberg et al disclose a method and an apparatus for providing and driving a liquid crystal microdisplay device on a silicon device with a digital low pulse width modulated voltage signal (page 21, lines 22-29) comprising a partial wave retardation

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film(pages 10 and 23) and frame updating(page 22) and cell gap controlling(pages 13 and 20)which all function as claimed.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandberg et al in view of Flynn et al(20020140647A1).

Sandberg et al is discussed above. Flynn et al is cited to show that the concept of driving an LCD display device with a low voltage of equal or less than 3.3 volts and wherein the LCD cell has a gap of less than approximately 1 micron is old(see abstract and paragraph[0022]). Thus, it would have been obvious to one of ordinary skill in the art to modify the system of Sandberg et al with noted teachings of Flynn et al such that to drive the LCD cell with a low voltage signal at equal or less than approximately 3.3 volts and wherein the LCD cell gap is less than approximately 1 micron because both references are related to driving of an LCD device with low voltage signals and controlling of the cell gap of the LCD display device.

8. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandberg et al in view of Yoshihara et al(6,762,743B2).

Sandberg et al is discussed above. Yoshihara et al is cited to show that the concept of driving an LCD cell at a frequency greater than 120 hertz having at least two different colors is old(column 8). Therefore, it would have been obvious to one of ordinary skill in the art to modify the system of Sandberg et al with the noted teachings of Yoshihara et al such that to the LCD cell of Sandberg et al at a frequency greater than 120HZ and having at least two colors because both references are related to driving of an LCD display device and further because to reduce image flickering in color LCD display device.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandberg et al in view of Knox et al(6,771,339B2).

Sandberg et al is discussed above. Knox et al is cited to show that the concept of retarding an output of the LCD cell at different $\frac{1}{4}$ wave plates is old(see abstract). Thus, it would have been obvious to one of ordinary skill in the art to modify the system of Sandberg et al with noted teaching of Knox et al such that to retard an output of the LCD cell of Sandberg et al by less than a quarter wave in order to increase the overall efficiency and brightness of the LCD display device.

10. Claims 20 and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by De Smet et al(WO 2004001715A1).

De Smet et al disclose a system comprising a polarization beam splitter(13), a liquid crystal cell(14) on a silicon display, a drive circuitry for driving the LCD cell with low voltage signal(page 13) and a color switcher(17) which all function as claimed.

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11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Smet et al in view of Sandberg et al.

De Smet et al and Sandberg et al are both discussed above. De Smet et al substantially show all the feature of the above claim except for the "partial polarization rotation retarder" However, Sandberg et al is cited to show that the concept of utilizing a partial polarization rotation retarder film coupled to an LCD cell is old(see pages 10 and 23). Thus, it would have been obvious to one of ordinary skill in the art to modify the system of De Smet et al with the noted teaching of Sandberg et al such that to couple a partial polarization rotation retarder film to the LCD cell because both are related to driving of an LCD microdisplay on a silicon device with low pulse width voltages.

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Smet et al in view of Flynn et al.

De Smet et al and Flynn et al are both discussed above. De Smet et al substantially show all the features of the above claim except for the "cell gap less than approximately 1 micron". However, Flynn et al is cited to show that the concept of providing an LCD cell with a cell gap of less than approximately 1 micron is old[0022]. Thus, it would have been obvious to one of ordinary skill in the art to modify the system of De Smet et al with noted teachings of Flynn et al such that to control the LCD cell gap to be less than approximately 1 micron because both references are related to driving of an LCD device with low voltage signals.

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13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Smet et al in view of An(6,317,121B1).

De Smet et al is discussed above. An is cited to show that the concept of utilizing at least two buffers to provide frame updates in an LCD driving circuitry is old(column 5, lines 1-67 and column 6, lines 1-26). Thus, it would have been obvious to one of ordinary skill in the art to modify the system of De Smet with noted teaching of An such that to provide double buffers in the system of De Smet et al in order to provide frame updates because both references are related to driving of LCD display devices with low voltages and frame and/or sub-frame driving.

14. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandberg et al in view of An.

Sandberg et al and An are both discussed above. This, it would have been obvious to of ordinary skill in the art to modify the system of Sandberg et al with the above noted teachings of An for reasons cited above in paragraph 12.


15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sasaki et al, Iba et al, Sandoe et al, Stevens and Iba are made of record to show various types of LCD display driving with low voltage pulse width modulated signals.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Fatahiyar whose telephone number is (571)272-7688. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
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MF
M. Fatahiyar
September 30, 2006